

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
15 September 2005 (15.09.2005)

PCT

(10) International Publication Number
WO 2005/084776 A1

(51) International Patent Classification⁷: **B01D 29/66**,
35/30

(21) International Application Number:
PCT/KR2004/000576

(22) International Filing Date: 17 March 2004 (17.03.2004)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2004-0015580 8 March 2004 (08.03.2004) KR

(71) Applicant (for all designated States except US): **NA-
NOENTECH CO. LTD.** [KR/KR]; 867-5 Eogok-dong,
Yangsan-city, Kyungsangnam-do 626-220 (KR).

(71) Applicant and

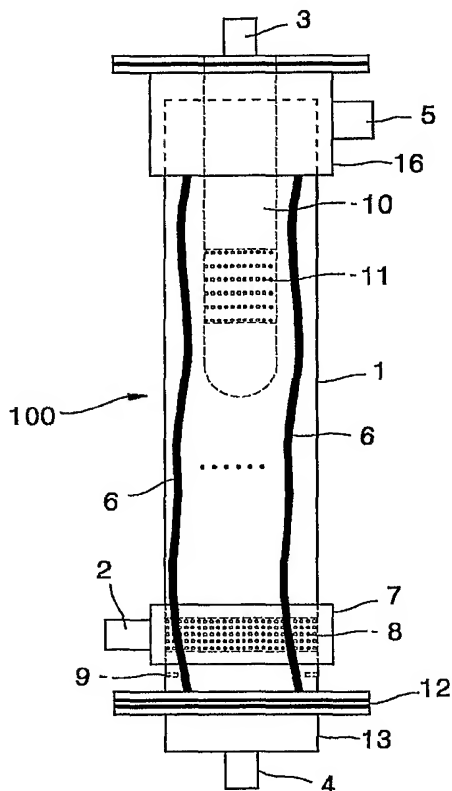
(72) Inventor: **HAN, Ki-Baek** [KR/KR]; 107-1603 Yangjeong
Hyundai Apt., Yangjeong1-dong, Busanjin-gu, Busan-city
614-754 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KIM, Hyo-Sang**
[KR/KR]; 214-1704 Byuksan Apt., Jwa-dong, Haewoon-
dae-gu, Busan-city 612-766 (KR). **ROH, Myung-Gyoo**
[KR/KR]; 101-203 Samik Apt. 573 Macheon-dong,
Songpa-gu, Seoul 138-120 (KR). **HWANG, Moon-Hyun**
[KR/KR]; 105-301 Daedong Hwangtobang Apt. 696-1
Jungbu-dong, Yangsan-city, Kyungsangnam-do 626-050
(KR). **CHO, Chul-Hee** [KR/KR]; 101-201 Now Family
Apt. 796, Shinnae1-dong, Jungrang-gu, Seoul 131-868
(KR). **PARK, Sung-Ho** [KR/KR]; 4/2, 250-2727 Ban-
song3-dong, Haewoondae-gu, Busan-city 612-804 (KR).
YOO, Sang-Woong [KR/KR]; 37-1 Shinseon3-ga,
Youngdo-gu, Busan-city 606-053 (KR). **HONG,**
Sung-Kyu [KR/KR]; 128-14 Jangjeon1-dong, Geum-
jeong-gu, Busan-city 609-837 (KR). **LEE, Sung-Hoon**
[KR/KR]; Rm. 206 Seonam Yeonrib, Seonam-dong,
Nam-gu, Ulsan-city 680-100 (KR). **KIM, Chun-Keyng**
[KR/KR]; 101-703 Daedong Apt., Oncheon2-dong, Don-
grae-gu, Busan-city 607-062 (KR).

[Continued on next page]

(54) Title: FINE FILTERING APPARATUS CONTROLLABLE PACKING DENSITY USING FLEXIBLE FIBER



(57) Abstract: An apparatus for effectively filtering and separating fine
floc, algae, suspended solids, etc. remaining in water after biological and
physiochemical treatment is provided. The fine filtering apparatus includes
flexible fibers that control packing density, thus improving filtration effi-
ciency, the amount of clarified water, and filtering duration, and reducing
power consumption compared to a conventional filtering apparatus is pro-
vided. In the filtering apparatus, flexible fibers having an effective diameter
of 1 to 60 μm and which are flexible, elastic, and have proper surface rough-
ness extend in the longitudinal direction of the apparatus. A jacket shaped
unit for supplying source water (supplied water) has a porous structure. Clar-
ified water (treated water) is discharged through a central porous chamber.
The whole filter media layer can be utilized as a particle-entrapping space.



(74) **Agent:** LEE, Young-Pil; The Cheonghwa Bldg., 1571-18 Seocho-dong, Seocho-gu, Seoul 137-874 (KR).

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH,

GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.